Poster 6. Study of low-molecular-weight subunits of glutenin proteins in durum wheat.

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Glutenins and gliadins are two important endosperm proteins in wheat seed. Gluteins are composed of low-molecular-weight (LMW-GS) and high-molecular-weight (HMW-GS) subunits. The LMW-GS are encoded by the *Glu-A3*, *Glu-B3*, and *Glu-D3* loci on the group-1 chromosomes. These subunits are important in durum wheat mostly because of its role in pasta quality. In this study, ten different lines of Iranian 'Omid-Baksh' were studied by SDS–PAGE in order to evaluation of allelic variety of the LMW-GS. Pasta-making quality and some other important parameters in pasta making (protein content, SDS precipitation height, Zeleni number, and seed hardness) also were analyzed in these lines. The results showed a similarity in the protein profiles and allelic distribution among the ten lines. Due to the presence of the LMW-2 subunit (according to Payne et al. 1984 and Pogne et al. 1988), these lines are categorized as high-quality wheats. These lines also are good candidates for pasta making because of *Glu-A3* (allele 6), *Glu-B3* (alleles 2+4+15+19), and *Glu-B2* (allele 12) (Neito-Taladriz 1997). These lines did not show broad differences in pasta quality properties. According to our results, line number 10 is better than the others for having more appropriate parameters for pasta making and also the appropriate distribution of the *Glu-3* allele.

Poster 7. The comparison between morphological and pasta-quality traits among some durum wheat lines in Iran.

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In order to assess pasta quality and determine the effects of morphological traits on quality, ten lines of Iranian durum wheat were examined. Traits related to pasta quality (such as 1,000-kernel weight, wet gluten percent, and Zeleny sedimentation volume) and morphological traits of the lines including growing (such as plant length, length of spike, length of flag leaf, and, number of leaves) and generative traits (such as number of spikelets and number of fertile and infertile florets) were analyzed for two different years.

Data collected through sampling were analyzed statistically based on a randomized complete block design. The variance analysis (ANOVA) of the quantitative traits showed that the difference between some traits, such as length of flag leaf, number of leaves, number of nodes, and number of fertile and infertile florets, and internode distance and number of spikelets per spike, were significant ($P = 0.05$). No significant differences were observed among the other traits. ANOVA of the morphological traits showed that all morphological traits among the lines were significant ($P = 0.05$). Means of test traits were checked against the means of control group using LSD method. Mean comparison indicated that some lines had significant increases, others had significant decreases, and others were indifferent according to the control group. Altogether, some morphological traits, such as length of spike, the number of fertile florets, and the number of spikelets showed a positive correlation to some quality traits such as 1,000-kernel weight and wet-gluten percent, especially among lines 1 and 8.

Poster 8. Statistical analysis on pasta quality traits among durum wheat lines in Iran.

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Pasta quality is related to some traits that can be measured and quantified. Of the nearly 20 traits are related to pasta, we analyzed nine among ten durum wheat lines. The traits were moisture content, protein percent, hardness index, 1,000-kernel weight, SDS sedimentation volume, wet gluten, dry gluten, Zeleny sedimentation volume, and disc pressure test according to international criteria. Among the ten durum wheat lines under study, moisture content was highest in lines 1 and 4; protein percent in line 8, hardness index in lines 6 and 7, 1,000-kernel weight in line 1, SDS sedimentation volume in lines 1 and 5, wet gluten in line 8, Zeleny sedimentation volume in line 8, and the disc pressure test in lines 5 and 6. Lines 1 and 8, which have the highest value for three traits, are the best cultivated lines for pasta making.